

MAR 27 2007

REMARKS

In response to the Official Action mailed on November 27, 2006, the application has been amended. No new matter has been added. Reconsideration of the rejections of the claims is respectfully requested in view of the above amendments and the following remarks.

In this amendment, claims 62 and 96 have been amended to correct typographical errors pointed out by the Examiner. In addition, claims 62, 83, 93, 94, 96 - 102 have been amended to more clearly set forth that a clamping apparatus as described by these claims is intended for use as a so-called "layer picker", i.e., as a device for lifting a rectangular layer of items stacked on a pallet. These amendments are supported by pages 2 and 3 of the specification as filed. In addition, claim 94 has been amended to describe the structure of the contact portion of each clamping arm in greater detail. This amendment is supported by page 12 of the specification and by the drawings as filed.

Examiner Keenan is thanked for his courtesy in granting an interview on December 12, 2006 to discuss the present application. At the interview, the inventor and his son explained how, prior to the present invention, there had been a long-felt but unsatisfied need for a clamping apparatus capable of use in the grocery and beer industries, and how a clamping apparatus described by the claims of the present application has

been able to meet this need for the first time, resulting in significant commercial success. These matters will be discussed in further detail below.

In paragraph 2 of the Official Action, claims 62 and 96 were objected to because of certain spelling errors. As mentioned above, the claims have been amended to correct these errors, thereby overcoming the objections.

In paragraph 4 of the Official Action, claims 62, 63, 85, 90 - 93, and 95 - 102 were rejected under 35 U.S.C. 103(a) as unpatentable over Tygard (U.S. Patent No. 5,516,255) in view of Kawamura (U.S. Patent No. 3,796,332). This rejection is respectfully traversed because the references provide no motivation to combine them in the manner proposed by the Official Action.

Tygard discloses a clamping apparatus having a plurality of opposing clamping arms pivotably mounted on a frame. Each clamping arm is equipped with a contact portion for contacting a side of a load to be lifted. The contact portions may be pivotably mounted on the lower ends of the clamping arms, but there is no mechanism for controlling the angle of the contact portions with respect to the vertical.

Kawamura discloses a cargo handling device having gripping claws 16 - 19 mounted on holding arms 12 - 15 on two opposing sides of a gripping means 6. Each of the holding arms 12 - 15 is

pivotably connected to a main body 7 of a gripping and suspending means 6 by universal joints 8 - 11 so that each of the holding arms 12 - 15 can pivot with two degrees of freedom. The arms 12 - 15 form parallel linkages on which gripping claws 16 - 19 are pivotably mounted. The parallel linkages enable the gripping claws 16 - 19 to be maintained in a level position as the holding arms 12 - 15 are pivoted by fluid cylinders 26 - 29 (column 2, lines 23 - 27).

According to the Official Action, it would have been obvious to have modified the apparatus of Tygard to utilize a four-bar linkage to control the angle of the contact portion of each clamping arm as taught by Kawamura "as this would be a more effective means of enabling the clamping arms to properly pick up loads of varying size".

The Applicant respectfully disagrees. A person skilled in the art to which the Tygard reference pertains would have seen no applicability of any teachings in Kawamura because Tygard and Kawamura relate to completely different types of device.

As discussed on pages 14 and 15 of the amendment filed on February 16, 2006 in connection with this application, in the field to which the present invention relates, which is the field of handling layers of goods stacked atop pallets in warehouses, in the past, patents relating to such devices indicated that it was acceptable for the clamping pads of a clamping apparatus to be either rigidly mounted at the bottom of an arm (as shown in U.S. Patent No. 5,253,974 (Williams), or for a clamping pad to be able to freely pivot with respect to an arm (as shown in U.S.

Patent No. 5,161,934 (Richardson) or U.S. Patent No. 5,516,255 (Tygard). Copies of the front pages of Williams and Richardson were submitted with the amendment filed on February 16, 2006. There was no general recognition in the relevant field of art that these arrangements posed any problems or that there was any need for or room for improvement in the manner in which a clamping pad clamped a layer of goods on a pallet.

Kawamura discloses that its structure is able to move holding arms while always maintaining gripping claws horizontal by use of a parallel linkage, but a person skilled in the art of the Tygard reference would have found no relevance to this teaching, for there is no teaching in Kawamura of any problem associated with the operation of a conventional clamping apparatus for grasping a load of goods on a pallet. Moreover, a person working in the field of the Tygard reference would not have considered the teachings of Kawamura to have any relevance to the specific field in which he was working, since Kawamura relates to "the transport operation of iron materials in either of the steel manufacturing plant or in the carrying out of timbers or iron ores from forest or mines and the like" (column 1, lines 21 - 24 of Kawamura). There is no obvious relevance of Kawamura, which pertains to the handling of bulk cargo, to the field of Tygard, which pertains to the handling of readily damageable items such as foods and beverages arranged in cartons in one or more layers on pallets.

Kawamura does state that the gripping claws on the holding arms are "maintained always in level position by the link

mechanism of the parallelogram during closing and opening as gripping and releasing the cargo is performed". However, Kawamura does not describe any significance of this feature, since Kawamura never says that there is any need for or advantage from keeping the gripping claws level. Column 2, line 51 of Kawamura states that "since the gripping claws are shifted in parallel by the parallelogram mechanism, it is effective in the point that interposedly holding and carrying of the cargo are performed effectively". It is not clear what this sentence would mean in English, and it is also not at all clear whether "shifted in parallel" refers to movement of the gripping claws on opposite sides of a load towards and away from each other, or whether it refers to the gripping claws on the same side of a load being shifted towards and away from each other in accordance with the width of the load. Kawamura is so unclearly written that a person skilled in the art could find no teaching in Kawamura of any advantage applicable to the Tygard reference.

It is noted that the primary goal of Kawamura appears to be to enable the separation between two gripping claws on the same side of a load (which column 1, lines 15 - 16 of Kawamura describe as "the width of the place of gripping thereof") to be adjusted in accordance with the shape and size of the materials being gripped. For this purpose, Kawamura employs parallel linkage to enable two gripping claws on the same side of a load to swing towards or away from each other along the side of the load. The fact that the parallel linkages keep the gripping claws on opposite sides of a load level as they swing towards and

away from each other seems to be a mere side effect and in no way a goal of Kawamura. In a device like that of the Tygard reference, in which there is only one contact portion on each side of a load, the principal reason in Kawamura for having parallel linkages (i.e., to adjust the separation between gripping claws on the same side of a load) is absent, so the parallel linkages of Kawamura have no obvious applicability to the device of the Tygard reference.

Thus, as a person skilled in the art would have found no motivation from the references to combine Tygard and Kawamura as proposed by the Official Action, the rejections of claims 62, 63, 85, 90 - 93, and 95 - 102 fail to set forth a *prima facie* case of obviousness. These claims are therefore allowable.

Concerning claim 92, the Official Action states that the angle of slope of the contact portion set forth in this claim "is an obvious design expediency based on the characteristics of the load to be handled". Describing a feature as a "design expediency" does not automatically render that feature obvious. Every feature of a claim is a result of a design by the inventor, so the fact that a feature has been designed cannot render that feature obvious, since otherwise every feature of a claim would have to be obvious. The fact that a feature is "expedient" (which the dictionary defines as "useful for effecting a desired result; suited to the circumstances or the occasion; advantageous; convenient") likewise cannot render a feature obvious; if a feature were no expedient, there would be no reason

for the feature to be part of an invention. At any rate, whether a feature is a matter of "design" and whether it is "expedient" is not the proper standard for obviousness. The appropriate inquiry is whether the prior art cited by the Official Action teaches or suggests the recited feature.

Page 14 of the specification of the present application states that when a load being grasped by a clamping apparatus according to the present invention comprises cases of beverages, sloping the inner surface of the contact portions 130 by 2 - 6° with respect to the side of the load enables the contact portions 130 to more effectively grasp the sides of the load. There is no teaching or suggestion in the cited references concerning such an advantage, so there is nothing in the references to motivate a person skilled in the art to modify the references so as to have the features set forth in claim 92. As such, the rejection of claim 92 does not set forth a *prima facie* case of obviousness. Claim 92 is therefore allowable.

In paragraph 5 of the Official Action, claim 83 was rejected under 35 USC 103(a) as unpatentable over Kawamura in view of Guignard et al (U.S. Patent No. 2,328,899, referred to below as Guignard). This rejection is respectfully traversed because there is no motivation found in the references to combine them in the manner proposed by the Official Action.

The structure of Kawamura is discussed above. As acknowledged by the Official Action, the device disclosed in

Kawamura does not have the ability to change the angle of a contact portion.

Guignard discloses a loader for lifting, carrying, etc. articles such as boxes using load carrying forks 42 and 43. The forks 42, 43 are mounted on a fork frame 38, which is pivotably mounted on upper and lower parallel arms 25 - 28. Figure 4 shows an embodiment in which the lower arms 27, 28 are equipped with hydraulic rams 91 which can be operated to enable the forks 42, 43 to be tilted forwards or rearwards.

According to the Official Action, it would have been obvious to have modified the apparatus of Kawamura to add a tilting mechanism as suggested by Guignard as "this is shown to be a desirable feature for improved pick-up and depositing of loads such as boxes or crates".

There are several reasons why a person skilled in the art would not have been motivated to combine the cited references in this manner. Firstly, Guignard relates to a device for carrying a load with forks 42, 43. As is customary with devices of this type, a load is not grasped but merely rests atop the forks, with the only lateral support being provided when one side of the load happens to rest against the upwardly turned ends 69 of the forks 42, 43. Since there are no members securing a load on the forks, the only way to prevent a load from sliding or falling off the forks when an external force is applied to the load, or to assist the load in disengaging from the forks when it is desired to discharge the load, is by tilting the forks. For example, as stated on page 2, right column, line 61 - 75 of Guignard, the

forward ends of the forks may be tilted upwardly in order to more securely hold a load in place on the forks during transport, while the forward ends of the forks may be tilted downwardly to aid in depositing a load. This tilting operation can be accomplished by, among other means, the hydraulic ram 91 shown in Figure 4 of Guignard.

The reasons for employing a hydraulic ram 91 in Guignard are absent from the device of Kawamura. The device of Kawamura grips a load from opposite sides with the gripping claws 16 - 19 rather than simply providing a support surface below a load, so a load is prevented from falling by the gripping force of the gripping claws. Furthermore, when an object needs to be released, it is sufficient to simply move the gripping claws 16 - 19 away from each other. The problem of a load inadvertently sliding off the ends of forks or of failing to disengage when desired is one that cannot occur with the device of Kawamura. Furthermore, the gripping claws of Kawamura already having sloping surfaces at their lower ends where they contact a load, so there is no need to change the angle of any member in order to disengage a load or to hold it in place.

Furthermore, while tilting the forks 42, 43 of Guignard is a very simple matter (since the fork frames 38 are pivotable with a single degree of freedom about pivot pins 40 and 41), tilting any of the gripping claws 16 - 19 of Kawamura in a controlled manner is a very complicated matter; since each gripping claw 16 - 19 is supported by four different parallel links, changing the angle of a gripping claw so as to tilt the gripping claw forwards or

backwards (i.e., towards or away from a load) without tilting the gripping claw sideways (which would make it impossible for the gripping claw to grip a load) requires changing the lengths of two of the four links of the gripping claw by different amounts. Moreover, the amounts by which the lengths of the two links need to be changed to prevent the gripping claw from tilting sideways varies with the orientation of the links in space. As a result, the process of tilting a gripping claw becomes a problem of great kinematic complexity, which the cited references nowhere teach how to perform. In short, the references are not enabling for the modifications to the references proposed by the Official Action.

Thus, as the reasons why Guignard employs hydraulic rams 91 to adjust the angles of forks 42, 43 are inapplicable to the device of Kawamura, and as the references do not teach how the device of Kawamura could be modified to adjust the angles of the gripping claws of Kawamura, a person skilled in the art would find no motivation to modify Kawamura in the manner proposed in the Official Action. As such, the rejection fails to set forth a *prima facie* case of obviousness of claim 83. This claim is therefore allowable.

In paragraph 6 of the Official Action, claims 64, 75, 83, and 94 were rejected under 35 U.S.C. 103(a) as unpatentable over Tygard in view of Kawamura and further in view of Guignard. This rejection is respectfully traversed because the references do not provide any motivation to combine them in the manner proposed by

the Official Action.

The reasonableness of this rejection is premised on the reasonableness of combining Tygard with Kawamura in the manner proposed by the Official Action. However, as discussed above with respect to the rejection in paragraph 4 of the Official Action, a person skilled in the art could find no motivation from the references combine Tygard with Kawamura. Since the combination of Tygard and Kawamura is not reasonable, adding Guignard into the mix cannot render the combination of all three references reasonable.

Furthermore, even if Tygard were combined with Kawamura as proposed by the Official Action, a person skilled in the art would find no motivation to combine Guignard with Tygard as modified by Kawamura.

Tygard relates to a clamping apparatus for grasping a load (and particularly one or more layers of objects stacked on a pallet) from multiple sides thereof, rather like a hand. Guignard, in contrast, supports a load primarily from below with the horizontal portions of forks 42 and 43 while possibly providing some lateral support for the load with the upwardly turned ends 69 of the forks. As discussed above, Guignard can tilt the forward ends of the forks 42, 43 upwards as a mean of preventing a load from falling or sliding off the forks during transport of the load, and it can tilt the forward ends of the forks downwards as an aid in depositing the load. The reasons for tilting the forward ends of the forks upwards or downwards in

Guignard are totally absent from Tygard, since the device of Tygard grasps a load to prevent the load from falling during transport, and when it is desired to release a load, the clamping arms of the device of Tygard can simply be pivoted away from each other. Since the device of Tygard, even if combined with Kawamura as proposed by the Official Action, would still be a device which grasps a load, a person skilled in the art could find no motivation to combine Tygard with Guignard as proposed by the Official Action. Accordingly, the rejection of claims 64, 75, 83, and 94 does not set forth a *prima facie* case of obviousness. These claims are therefore allowable.

With respect to claim 94, page 5 of the Official Action states that Kawamura includes elongated rigid panels with a surface to oppose a load, and mounting lugs pivotably connected to the lower ends of lever portions and control rods. The Applicant does not see anything in the structure of Kawamura that could be reasonably described as a "panel", for the gripping claws 16 - 19 of Kawamura appear to essentially be blocks, nor is there any sign in the drawings of Kawamura of these blocks being equipped with anything that could be described as "lugs". All that Kawamura discloses is that the lower ends of the holding arms 12 - 15 are connected to the block-shaped gripping claws 16 - 19 by universal joints 20 - 23. Since Kawamura does not include panels or lugs, it is not seen how combining Tygard with Kawamura can result in a structure having a panel and lugs as set forth in claim 94.

For the reasons set forth above, all of the pending claims are believed to be nonobvious in light of the cited references. As discussed at the interview held on December 12, 2006, further proof of the nonobviousness of the present invention is the significant commercial success which a clamping apparatus described by the claims of this application has enjoyed since its introduction on the market in 2003. Objective evidence of this commercial success is found in the accompanying declaration under 37 CFR 1.132, by Ed Tygard, who is the inventor of this application and the president of the assignee of the application. As set forth in this declaration, there have been significant efforts over many years to develop a clamping apparatus capable of lifting layers of grocery or beverage items stacked on pallets, but until the present invention, no one had been able to develop a clamping apparatus that was acceptable to either the beer or grocery industries. Upon the introduction of a clamping apparatus according to the present invention in 2003, these important industries for the first time accepted the use of a clamping apparatus, and as a result, a clamping apparatus according to the present invention has enjoyed significant commercial success. As set forth in the declaration, this commercial success was not a result of factors such as extensive advertising, since the assignee of this application is but a very small business with a very modest advertising budget, with no dedicated salesmen. As also set forth in the declaration, the beer and grocery industries are very exacting as to the quality of their merchandise and will not accept a clamping apparatus

except on its technical merits, particularly its ability to handle merchandise without damaging it. The declaration also shows that a clamping apparatus according to the present invention was not seen by potential users of the clamping apparatus as an obvious improvement on existing devices, because there was a lack of immediate acceptance of the clamping apparatus by some of the important players in the beer and grocery industries.

Despite this initial resistance to its introduction, those who have used a clamping apparatus according to the present invention now find it to be an invaluable tool, as evidenced, for example, by the attached letter from Ben E Keith Beers to the assignee, extolling the virtues of a clamping apparatus according to the present invention which was purchased from the assignee. It is to be noted that this letter was sent to the assignee well before the examination of the present application, so the letter was clearly not prepared in connection with this response.

All of this objective evidence strongly supports the nonobviousness of the present invention.

In light of the foregoing remarks, it is believed that the

present application is in condition for allowance. Favorable consideration is respectfully requested.

Respectfully submitted,



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Attachments:

declaration under 37 CFR 1.132
letter from Ben E. Keith Beers

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I hereby certify that this correspondence is being
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on March 27, 2007
(Date of Transmission)

Signature



Michael Tobias



Date: November 30, 2004

Mr. Rick Killmeyer
Tygard Machine & Manufacturing Co.
300 Meadowlands Boulevard
Washington, Pa. 15301-8905

Mr. Rick Killmeyer,

I just thought that I would share my recent productivity report with you regarding my Tygard Claws. But, before I do, I must tell you again how much I am still impressed with these machines. They are working fantastic for us in Dallas and my employees thoroughly love these machines. They are very well maintained and kept clean at all times. Now, a couple of years back when we were researching these machines, I was told to expect 1,250 to 1,600 cases stacked per hour by each of our 2 machines. I, as usual, boasted (I thought) and said that my employees would do 2,000 cases per hour soon. Well, I am happy to report that my 2 Tygard Claw Operations surpassed our goal of 2,000 cases per hour setting our mark at 2,031 cases per hour as a team on November 26, 2004. We are very excited here in Dallas to reach this goal and I will keep you posted as this number continues to grow upward. Thanks again for the Tygard Claw.

Sincerely,

A handwritten signature in dark ink, appearing to read "Johnny Jones".

Johnny Jones
Warehouse Manager
Ben E. Keith Beers

BEN E. KEITH BEERS

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